FORM PTO-1390 (Modified) (REV 11-98) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE **TRANSMITTAL LETTER TO THE UNITED STATES** **DESIGNATED/ELECTED OFFICE (DO/EO/US)** **CONCERNING A FILING UNDER 35 U.S.C. 371**	ATTORNEY'S DOCKET NUMBER **SWA-003-US** U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR **09/830477**

INTERNATIONAL APPLICATION NO. **PCT/CA99/01012**	INTERNATIONAL FILING DATE **29 OCTOBER 1999**	PRIORITY DATE CLAIMED **30 OCTOBER 1998**

TITLE OF INVENTION

DNS RELAY MODULE IN A DIGITAL NETWORK MODEM

APPLICANT(S) FOR DO/EO/US

    MOINEAU, Gilbert; DUPLAIX, Jerome

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).

4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))

    a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).

    b. ☒ has been transmitted by the International Bureau.

    c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).

6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).

7. ☒ A copy of the International Search Report (PCT/ISA/210).

8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))

    a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).

    b. ☐ have been transmitted by the International Bureau.

    c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.

    d. ☐ have not been made and will not be made.

9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

10. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).

11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).

12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

15. ☐ A **FIRST** preliminary amendment.

16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.

17. ☐ A substitute specification.

18. ☐ A change of power of attorney and/or address letter.

19. ☐ Certificate of Mailing by Express Mail

20. ☒ Other items or information:

> **Copy of the annexes to the IPER (eight (8) sheets comprising four (4) substitute sheets of amended claims (Article 34) and four (4) substitute sheets of specification amendments (Article 34))**
>
> **Copy of the International Application as published (WO 00/27092)**
>
> **White Advance Serial Number Postcard**

    PCTUS1/REV03

APPLICATION NO. IF KNOWN, SEE 37 CFR	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/830477	PCT/CA99/01012	SWA-003-US

21. The following fees are submitted:.	CALCULATIONS PTO USE ONLY

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO $1,000.00

☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but Internation Search Report prepared by the EPO or JPO $860.00

☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO $710.00

☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) $690.00

☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) $100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =	$860.00	

Surcharge of $130.00 for furnishing the oath or declaration later than ☐ 20 ☒ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).	$130.00	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	22 - 20 =	2	x $18.00	$36.00	
Independent claims	2 - 3 =	0	x $80.00	$0.00	
Multiple Dependent Claims (check if applicable).			☐	$0.00	

TOTAL OF ABOVE CALCULATIONS =	$1,026.00	

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable).	☐	$0.00	

SUBTOTAL =	$1,026.00	

Processing fee of $130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)). +	$0.00	

TOTAL NATIONAL FEE =	$1,026.00	

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).	☐	$0.00	

TOTAL FEES ENCLOSED =	$1,026.00	

	Amount to be: refunded	$
	charged	$

☒ A check in the amount of **$1,026.00** to cover the above fees is enclosed.

☐ Please charge my Deposit Account No. **50-1442** in the amount of to cover the above fees.
A duplicate copy of this sheet is enclosed.

☐ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **50-1442** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Supervisor, Patent Prosecution Services
PIPER MARBURY RUDNICK & WOLFE, LLP
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41,668; 42,024

REGISTRATION NUMBER

27 APRIL 2001

DATE

DNS RELAY MODULE IN A DIGITAL NETWORK MODEM

Field of the Invention

The present invention relates to a digital network modem, such as an ISDN or a
5 DSL modem, and more particularly, pertains to a digital network modem with a
domain name server relay module.

Background of the Invention

To facilitate accessing and locating computers on a TCP/IP network, a Domain
10 Name Service (DNS) is used. This name resolution software enables users to
refer to computers by domain name or host names. The DNS server maintains a
database of domain names (host names) and their corresponding IP addresses.
In an Internet Protocol (IP) network, the application queries a DNS to turn the
name of the machine it wishes to communicate with into its IP address.
15 NETwork Basic Input Output System (NetBIOS) is an application
programming interface that augments the DOS BIOS by adding special
functions for LANs. It is the native networking protocol in DOS and Windows
networks. NetBIOS computers are identified by a unique 15-character long
name, and Windows machines (NetBIOS machines) periodically broadcast
20 their names on the network so that Network Neighborhood can catalog them.

WINS (Windows Internet Naming Service) runs on Windows NT Server-based
networks. It is a service that keeps a database of computer name-to-IP address
mappings so that the NetBIOS computer names used in Windows network
25 environments can be mapped to IP addresses when the underlying network is
IP-based. When a user needs to access some computer, the NetBIOS name is
referenced, and this name is handed to the nearest WINS server, which then
returns an IP address. WINS is almost completely automatic from an
administrative point of view. It builds its own database over time and
30 automatically updates itself.

- 2 -

Computer networks are being installed in more and more residential, office and industrial environments, and the increase in the number of such networks has increased the need for skilled technicians required to configure and maintain such networks. Any simplification of the task of network management is
5   important from the perspective of both increased reliability and reduced training for the network manager. A Local Area Network (LAN) is a communications network that serves users within a confined geographical area. It is made up of servers, workstations, a network operating system and a communications link.

10   A problem arises when a station on a LAN is requesting an IP address using a domain or host name, especially on small networks when no local DNS is available. The DNS specified for the station will receive the request for the IP address and a connection to the Internet or to an external network will be made to reach the DNS server which will also try to find the domain or host name by
15   verifying the existence of such a domain. In the case where the machine intended was on the LAN, the connection to the external network has caused unnecessary overhead in connection time and costs.

A second problem arises when a station often requests the same external IP
20   address. The DNS must always be contacted through a connection to the external network to reply with the correct IP address. If these repeated connections are in a reduced period of time, it would most probably be unnecessary to request the IP address every time the domain name is to be contacted. This problem slows the connection causing unnecessary costs.
25

A conventional DNS is described in an article entitled "Reliability of WWW name servers" by Rowe K E et al., published in Computer Networks and ISDN systems in April 1995.

30   Summary of the Invention
It would be advantageous to have a DNS on a digital modem, which would readily recognize communication requests between users of the LAN and reply locally while acting as a "local" DNS.

AMENDED SHEET

It would also be advantageous to have a DNS on a digital modem which would forward the requests for external network addresses to an external DNS and which would keep an up-to-date list of the replies received from the external

5   DNS in order to rapidly answer a request for the same IP address at a later time.

It is therefore an object of the invention to provide a DNS relay module that provides a rapid response to domain name requests from a local store of IP

10   addresses.

It is also an object of the present invention to provide a DNS relay module that replies to internal Domain name requests by acting as a local DNS using a list of local hosts names automatically built by looking at NetBIOS over IP packets

15   sent by Windows stations.

It is furthermore an object of the present invention to provide a DNS relay module that forwards IP address requests to an external DNS.

20   It is equally an object to provide such a DNS relay module that manages the sending of requests to more than one external DNSs in a manner transparent to the LAN clients to provide better efficiency.

It is also an object of the present invention to provide a DNS relay module that

25   fetches, from the local store of IP addresses, the ISDN channel on which the communication should be sent.

According to a first aspect of the present invention, a network modem device connecting a Local Area Network (LAN) to a remote network is provided. It

30   comprises a local store containing a list of domain or host names and attribute data; a Domain Name Service (DNS) relay module; and a router having a LAN interface connected to the LAN, a local connection to the DNS relay module and a network connection to the remote network; wherein the DNS relay module

- 4 -

uses the list and the attribute data to respond to requests, received from the LAN via the router on the local connection, for a numeric address in response to a domain name when the domain name requested is on the list, and the DNS relay module generates a DNS request and transmits the DNS request to an

5   external DNS on the remote network via the local connection to the router, and the DNS relay module returning a reply from the external DNS to the LAN via the local connection to the router to respond to the request for a numeric address when the domain name requested is not on the list.

10   According to a preferred embodiment of the present invention, the attribute data identifies a domain or host name as a local station on the LAN and the DNS relay module, when the domain or host name is identified as a local station on the LAN, replies locally to said request.

15   According to another preferred embodiment of the present invention, the DNS relay module listens to NetBIOS Over IP packets of information, extracts local computer names and IP addresses from the packets and adds these computer names and IP addresses to the list of domain names.

20   According to another preferred embodiment of the present invention, the list comprises domain names looked-up on the external DNS and the DNS relay module automatically adds to this list of domain names looked-up on the external DNS, an entry corresponding to the reply from the external DNS.

25   According to another preferred embodiment of the present invention, the list comprises both domain names looked-up on an external DNS with corresponding attribute data and host names declared on the LAN with corresponding attribute data.

30   According to still another aspect of the present invention, there is provided a method for relaying DNS requests on a LAN connected through a router to a remote network by a network modem device. The method comprises a Domain Name Service (DNS) relay module receiving a domain name request via the

DNS relay module and a network connection to the remote network, on the local connection, for a numeric address in response to a domain name; the DNS relay module using a local store containing a list of domain or host names and

5   attribute data to respond to the request when the domain name requested is on the list, the DNS relay module generating a DNS request and transmitting the DNS request to an external DNS on the remote network via the local connection to the router, and the DNS relay module returning a reply from the external DNS to the LAN via the local connection to the router to respond to the request for a

10   numeric address when the domain name requested is not on the list.

Brief Description of the Drawings

The invention will be better understood by way of the following detailed description of a preferred embodiment with reference to the appended

15   drawings, in which:

Fig. 1 is a schematic block diagram of the DNS Relay Module used in a digital modem.

Detailed Description of the Preferred Embodiment

20   As illustrated in Fig. 1, the digital modem 10 according to the preferred embodiment is an ISDN modem having a plurality of functional components shown in Fig. 1. The separation of components illustrated in the separate blocks in Fig. 1 is for the purposes of illustration only, and does not necessarily reflect the physical separation of components in the real device which is built from both

25   hardware and software/firmware components.

Modem 10 acts as a router or gateway to a remote network via, in the preferred embodiment, an ISDN connection 20. In the preferred embodiment, one

AMENDED SHEET

- 6 -

channel of the ISDN line is connected to an Internet Service Provider (ISP) for Internet access, while the other channel is connected to a "private" intranet. When the modem 10 is connected to the Ethernet local area network (LAN) 22 and powered up, a LAN interface 12 and a System Tray / Modem Monitor 26

5   become active. The modem 10 includes a router 18 which communicates over connection 20 and with LAN interface 12. In operation, the modem 10 directs data traffic via router 18 onto the selected ISDN channel 20. Devices on LAN 22 send packets of information to one of the ISDN channels by sending a packet addressed to the modem 10 with the desired destination IP address and

10   message content contained in the packet. The router 18 forwards the message on one of the ISDN channels to the desired IP address.

In the reverse direction, router 18 receives packets from lines 20 and determines the desired destination on LAN 22, and forwards the packets via

15   interface 12 on LAN 22 with the correct desired destination address. In the preferred embodiment in which one channel is used for the intranet and the other for the Internet, router 18 also switches packets received from the LAN 22 based on the desired address either to the Internet channel or the intranet channel. Of course, both channels could be used for intranet or Internet

20   purposes, or even for connecting to a different type of data network.

Modem 10 includes, in the preferred embodiment, a DNS relay module 19. From the devices' point of view on the LAN 22, DNS Relay Module 19 becomes the primary DNS that they can refer to. Thus, in accordance with

25   TCP\IP, when an address is requested by domain name or host name, instead of using an IP address, the device sends a request to the DNS for the IP address for the domain or host name.

- 7 -

The DNS relay module 19 is however not a full DNS. The advantage of identifying module 19 as a DNS for the devices on the LAN 22 is that module 19 can contain lists of frequently-used domain names and can give specific responses immediately for those domain names, while other domain name requests can be passed on to a remote DNS, such as an ISP DNS. Furthermore, the domain name for an internal corporate domain name may be contained in module 19 or in a readily accessible list. For the requests to an internal corporate domain name, the IP address is returned directly instead of using the ISP DNS constantly. Fewer requests to the ISP DNS means faster service. Also, some intranet addresses may not be known to the outside world (private addresses) and the ISP DNS, for example. The DNS relay module 19 is also used to route the DNS requests to the Intranet DNS or the ISP DNS.

In the preferred embodiment of the present invention, the DNS Relay Module 19 compares the request from a station (24,30,32) on LAN 22 with at least one list. The list 15 can be configured and built by the Network Administrator using the Configuration station 24. Examples of useful lists are the following: a list of frequently-accessed domains, a list 15 of Domain names recently looked up on an external DNS, another list 16 of computer names declared on the LAN automatically built by looking at NetBIOS Over IP packets. These lists comprise the name of the domain or computer requested and the corresponding IP address. These lists would be consulted by the DNS Relay Module in an order appropriate for fastest results. In a preferred embodiment, the DNS Relay Module 19 consults two of these lists: the list 15 of domain names looked-up on an external DNS and the list 16 of computer names declared on its LAN. And, also in a preferred embodiment, the DNS consults the list 16 of computer names first, before consulting the list 15 of domain names.

- 8 -

These lists can be built up in many ways. A first manner is to make a new entry in the lists each time an IP address unknown from the lists is returned by the external DNS. In the case that the domain name or host name requested by a device on the LAN 22 is unknown to the DNS Relay Module 19 (i.e. it does not

5   appear on any of its lists), the DNS Relay Module 19 forwards the request to an external DNS such as an ISP DNS. The DNS Relay Module 19 records the answer sent from the ISP DNS back to the device on the LAN 22 and adds this entry to one of its lists. These new entries can have an "expiry date". The life of an IP address can be set, for example, for one day. After a day, the DNS Relay

10   Device 19 would forward the request to an external DNS as if the entry did not exist in the list and would record the reply. Since the local store on which these addresses are stored can be a stack, a First In, First Out queue could provide best results. Also, it should be possible at any time to reset these lists. When the table or list is full, the older entry is overwritten by the new one. The

15   possibility of an overflow of addresses can also be eliminated by limiting the list to a certain amount of entries.

A second manner to make a new entry is to manually edit the lists. Only authorized users such as network administrators should be able to look at and

20   edit the lists using the System Tray / Modem Monitor interface 26. These lists could be maintained manually for known changes in domain names or computer names.

DNS relay module 19 can also make use of the NETBIOS Over IP protocol

25   supported in Microsoft Operating systems (Windows 95, 98 and NT). Using this protocol, the stations (24,30,32) on the LAN 22 advertise their computer (host) names and IP addresses. By intercepting these packets, the DNS relay module 19 can learn the DNS name of the PCs on the local LAN 22 and can store this information in a list (16). When a request for an IP address

corresponding to an entry in that list is made, the DNS relay module replies to the request while acting as a local DNS.

In the preferred embodiment where one channel is for the Internet and the other

5   channel is for the intranet, the DNS relay module 19 only routes DNS requests, based on the domain name included inside the request. For example, xxx.mycompany.com would be identified as an intranet address and xxx.ibm.com would be referred as an Internet address. Any other packets are routed by (18).

10

Of course, once the DNS Relay Module 19 has returned an IP address for the domain or computer name to the station, the communications request will be routed by router 18 to the appropriate channel of ISDN connection 20, either intranet or internet.

15

The DNS relay module 19 can also contain two or more external DNS addresses. When a request for a domain name that was sent to the external DNS fails for a certain amount of failures (preferably only after two failures), the module 19 switches to using another one of the plurality of external DNS

20   addresses. In this way, greater reliability and efficiency for accessing domain names from the LAN 22 is afforded. The stations (24,30,32) on the LAN 22 only need to know one DNS address, that of the DNS Relay Module 19 while in fact they have the benefit of multiple DNS working for them.

25   While the invention has been described in connection with specific embodiments thereof, it will be understood that it is capable of further modifications and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosure as come

within known or customary practice within the art to which the invention pertains and as may be applied to the essential features hereinbefore set forth, and as follows in the scope of the appended claims.

CLAIMS

1.   A network modem device connecting a Local Area Network (LAN) to a remote network, comprising:

a local store containing a list of domain or host names and attribute data;

a Domain Name Service (DNS) relay module; and

a router having a LAN interface connected to said LAN, a local connection to said DNS relay module and a network connection to said remote network;

wherein said DNS relay module uses said list and said attribute data to respond to requests, received from said LAN via said router on said local connection, for a numeric address in response to a domain name when said domain name requested is on said list, and said DNS relay module generates a DNS request and transmits said DNS request to an external DNS on said remote network via said local connection to said router, and said DNS relay module returning a reply from said external DNS to said LAN via said local connection to said router to respond to said request for a numeric address when said domain name requested is not on said list.

2.   A network modem device as claimed in claim 1, wherein said attribute data is an IP address.

3.   A network modem device as claimed in claim 1, wherein said attribute data identifies a domain or host name as a local station on said LAN and said DNS relay module, when said domain or host name is identified as a local station on said LAN, replies locally to said request.

4.   A network modem device as claimed in claim 1, wherein said network connection is a connection to at least one ISDN channel.

5.   A network modem device as claimed in claim 4, wherein said router is connected to two ISDN channels: one for the intranet and one for the Internet.

AMENDED SHEET

6.   A network modem device as claimed in claim 3, wherein said DNS relay module listens to NetBIOS Over IP packets of information on said LAN, extracts local computer names and associated IP addresses from said packets and adds said computer names and associated IP addresses to said list of domain names.

7.   A network modem device as claimed in claim 2, wherein said list is a list of domain names looked-up on the external DNS, and said DNS relay module automatically adds to said list of domain names looked-up on the external DNS, an entry corresponding to said reply from said external DNS.

8.   The device according to claim 1, wherein said device is a digital network modem.

9.   The device according to claim 8, wherein said device is an ISDN modem.

10.   The device according to claim 1, wherein said list comprises :
a list of domain names looked-up on an external DNS with corresponding attribute data; and
a list of host names declared on said LAN with corresponding attribute data.

11.   The device according to claim 1, wherein said external DNS is one of a group of external DNSs.

12.   The device as claimed in claim 1, wherein said list of domain names and attribute data has an expiry date and time, and said DNS relay module comprises a mechanism for requesting from an external DNS a newly fetched numeric address for said domain name when a next request for said domain name will be received, for restoring said newly fetched numeric address as the attribute data for said domain name in said list and for refreshing said expiry date and time.

13. A method for relaying DNS requests on a LAN connected through a router to a remote network by a network modem device, comprising:

a Domain Name Service (DNS) relay module receiving a domain name request via said router having a LAN interface connected to said LAN, a local connection to said DNS relay module and a network connection to said remote network, on said local connection, for a numeric address in response to a domain name;

said DNS relay module using a local store containing a list of domain or host names and attribute data to respond to said request when said domain name requested is on said list,

said DNS relay module generating a DNS request and transmitting said DNS request to an external DNS on said remote network via said local connection to said router, and said DNS relay module returning a reply from said external DNS to said LAN via said local connection to said router to respond to said request for a numeric address when said domain name requested is not on said list.

14. A method as claimed in claim 13, wherein said attribute data identifies a domain name as a domain name for a device on said LAN.

15. A method as claimed in claim 13, wherein said generating comprises requesting a numeric address on said external DNS and responding to said request with a numeric address corresponding to said domain or host name.

16. A method as claimed in claim 13, wherein said attribute data is an IP address.

17. A method as claimed in claim 14, further comprising steps of listening to NetBIOS Over IP packets of information, extracting local computer names and IP addresses from said packets and adding said computer names and IP addresses to said list of domain names.

AMENDED SHEET

18.   A method as claimed in claim 17, wherein said list of computer names declared on the LAN is automatically built using packets of information sent by stations on said LAN using NetBIOS Over IP protocol in which said station name and IP address is available.
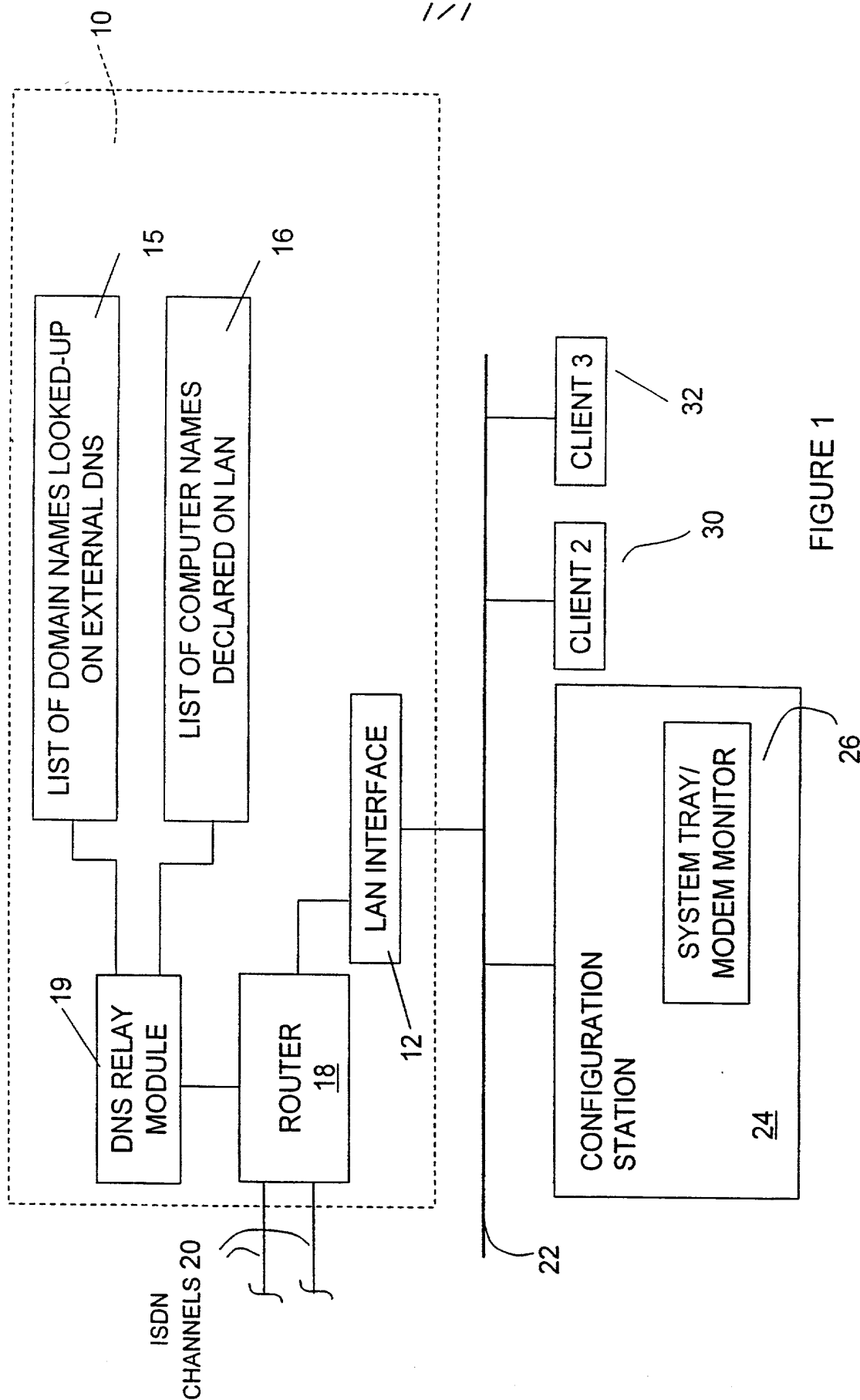
19.   A method as claimed in claim 13, further comprising a step of automatically adding to said list of domain names looked-up on the external DNS, an entry corresponding to said reply from said external DNS and wherein said list is a list of domain names looked-up on the external DNS.

20.   A method as claimed in claim 13, wherein said list comprises :
a list of domain names looked-up on an external DNS with corresponding attribute data; and
a list of host names declared on said LAN with corresponding attribute data.

21.   A method as claimed in claim 13, wherein said external DNS is one of a group of external DNSs.

22.   A method as claimed in claim 13, wherein said list of domain names and attribute data has an expiry date and time and said method further comprises the steps of
requesting from an external DNS, a newly fetched numeric address for said domain name when a next request for said domain name will be received,
restoring said newly fetched numeric address as the attribute data for said domain name in said list and
refreshing said expiry date and time.

1/1

FIGURE 1

Declaration and Power of Attorney for Patent Application

Déclaration et Pouvoir pour Demande de Brevet
French Language Declaration

En tant qu'inventeur ci-après désigné, je déclare par la présente que:

As a below named inventor, I hereby declare that:

Mon domicile, mon adresse postale et ma nationalité sont tels que figurant ci-dessous à côté de mon nom.

My residence, post office address and citizenship are as stated next to my name.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DNS RELAY MODULE IN A DIGITAL NETWORK MODEM,

et dont le mémoire descriptif est ci-joint à moins que la case suivante n'ait été cochée:

the specification of which is attached hereto unless the following box is checked:

☐ a été déposée le _____ sous le numéro de demande des États-Unis ou le numéro de demande internationale PCT _____ et modifiée le _____ (le cas échéant).

☒ was filed on __April 27, 2001_ as United States Application Number 09/830,477 and/or PCT International Application Number_PCT/CA99/01012 filed October 29, 1999 and was amended on January 4, 2001 (if applicable).

Je déclare par la présente avoir révisé et compris le contenu du mémoire descriptif ci-dessus mentionné, incluant les revendications, telles que modifiées par toute modification ci-dessus mentionnée.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, tel que défini dans le Titre 37, §1.56 du Code fédéral des réglementations.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations., §1.56.

Je revendique par la présente la priorité étrangère, en vertu du Titre 35, §119(a)-(d) ou §365(b) du Code des États-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, §365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les États-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT

I hereby claim foreign priority under Title 35, United States Code, §119(a)-(d) or §365 (b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application

French Language Declaration

ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

on which priority is claimed.

Prior foreign application(s)
Demande(s) de brevet antérieure(s)

Priority Not Claimed
Droit de priorité non revendiqué

___2,252,207___ ___Canada___ ___30 October 1998___ ☐

(Number) (Country) (Day/Month/Year Filed)
(Numéro) (Pays) (Jour/Mois/Année de dépôt)

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(Number) (Country) (Day/Month/Year Filed)
(Numéro) (Pays) (Jour/Mois/Année de dépôt)

Je revendique par la présente tout bénéfice, en vertu du Titre 35 §119(e) du Code des États-Unis, de toute demande de brevet provisoire effectuée aux États-Unis et figurant ci-dessous.

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

_____

(Application No.) (Filing Date)
(N° de demande) (Date de dépôt)

Je revendique par la présente tout bénéfice, en vertu du Titre 35, §120 du Code des États-Unis, de toute demande de brevet effectuée aux États-Unis, ou en vertu du Titre 35, §365(c) du même Code, de toute demande internationale PCT désignant les États-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, §112 du Code des États-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, tel que défini dans le Titre 37, §1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

_____ _____ _____

(Application No.) (Filing Date) (Status) (patented, pending, abandoned)
(N° de demande) (Date de dépôt) (Statut) (breveté, en cours d'examen, abandonné)

_____ _____ _____

(Application No.) (Filing Date) (Status) (patented, pending, abandoned)
(N° de demande) (Date de dépôt) (Statut) (breveté, en cours d'examen, abandonné)

French Language Declaration

Je déclare que toute les déclarations faites dans la présente sont à ma connaissance, véridiques et que toutes les déclarations faites à partir de renseignements ou de suppositions sont tenues pour véridiques; et de plus, que toutes ces déclarations ont été faites en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une peine d'emprisonnement, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des États-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.
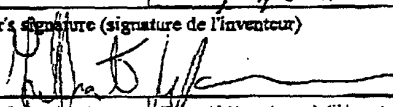
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POUVOIR: En tant qu'inventeur désigné, Je nomme par la présente l'(les) avocat(s) et/ou agent(s) suivant(s), avec plein pouvoir de révocation et de substitution, chargés de poursuivre cette demande et de traiter toute affaire s'y rapportant avec l'Office des brevets et des marques: *(mentionner le nom et le numéro d'enregistrement).*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following agents and/or attorneys, with full power of substitution, association, and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*

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